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LETTER TO THE EDITOR

Comment on: "Talent Identification in Sport: A Systematic Review"

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Dear Editor,

We read the recent systematic review by Johnston et al. [1] with great interest, and we compliment the authors on providing an overview of the empirical studies regarding talent identification programs in sports. The talent identification literature contains many studies that relate one or multiple performance components to athletes' skill levels to find prerequisites for excellent athletic performance. Although other critical nonsystematic reviews on talent identification programs have been published [2–6], a systematic review synthesizing the available evidence in terms of predictive validity of the performance components was timely. Accordingly, the review by Johnston et al. [1] can be used to highlight several gaps in the talent identification research field, as we will elaborate on below. We think that research from selection psychology can offer some valuable insights with respect to the conclusion by Johnston et al. [1] that large inconsistencies exist in the relationship between predictor variables and skilled performance. Moreover, we argue below that future empirical research may benefit from reconsidering the operationalization of elite performance to better evaluate the predictors of sport-specific talent and sports talent in general.

In the majority of talent identification studies, including the studies incorporated in the review paper by Johnston et al. [1], the manifestation of sports talent is sports performance. In selection psychology, this—to be predicted—behavior is referred to as the criterion [7]. Johnston et al. [1] distinguished three predictor-criterion categories that were examined in the included studies: cognitive/psychological capabilities, physical profile, and previous performance/experience. However, the predictor–performance relationships comprised all sports: no indication of the related sport for each identified relationship was explicitly given. Aggregating predictors within each category across sports led to the conclusion that "in general, no variables within the studies examined uniformly predicted skill level" (p. 8), which the authors explained through inconsistent study designs and diverse definitions of what a talented athlete is.

However, a more straightforward interpretation for this finding is that the included empirical studies examined many different sports domains. Psychological research has demonstrated that when the criterion consists of multiple factors, different patterns of predictor–criterion relationships can emerge [8]. This also applies to the concept of sports talent: every study included in the review examined

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talent through the criterion of performance, but different types of sports were examined and thus different types of performance criteria. Although some overlap is expected across different sports (which varied from gymnastics to soccer and rugby), there is considerable variability in the content of the criterion domains, as reflected by the differences in the task, rules, activities, and required motor abilities inherent in the different sports examined. It is, therefore, also likely that there is variability in the extent to which the same component contributes to excellent performance across sports; thus, not every component is equally important in predicting different sport-specific behaviors (see Sackett et al. for a discussion in a work-related context [9]). This probably explains the inconsistencies in the predictor–criterion relationships that were found.

We acknowledge that the search for variables that predict sports talent across different sports is interesting, both from a theoretical and practical perspective. For example, sprinting abilities discriminated between selected and non-selected players in invasive team-ball sports such as soccer, rugby, Australian Football, and handball [1] (p. 9). However, such validity generalizations require careful statistical analyses, and cannot simply be assumed for sports talent identification in general. Moreover, validity generalizations should be preceded by the systematic collection of evidence for the predictive power of performance indicators in relation to specific behavioral performance criteria. This will answer the question "what are valid predictors for a particular type of athletic performance?" Indeed, at the moment this question cannot be answered for many sports.

Another aspect that limits our scientific understanding in talent identification is the common definition and operationalization of elite performance. In a typical study, and also in many of the studies included in the review, the criterion is not directly measured, but inferred from comparing a selected group of highly skilled performers with a less-skilled group [3]. However, quantifying performance by means of a ranking or scale will better characterize the predicted sporting behavior. The simple dichotomization of performance will result in a significant loss of information, as it cannot adequately capture the heterogeneous performance levels of different players within a selected group. Quantifying performance as a continuous variable is already common for talent selection research in the fields of education and industrial-organizational psychology [10, 11]. In the area of soccer, two interesting recent studies are those by van Maarseveen et al. [12], who aimed to quantify soccer performance by means of a notational analysis, and the study by Fenner et al. [13], who used a cumulative ranking point system. Both studies examined soccer performance that emerges in small-sided games, which also corresponds with Johnston et al.'s [1] plea for future studies to incorporate a more ecological design.

In conclusion, we appreciate the effort made by Johnston et al. [1] to systematically evaluate the empirical evidence on factors that may predict sports talent. The differences that were found in the predictive value between the variables are not unique to sports talent in general, but are prevalent even in sport-specific talent identification literature. Hence, this review also highlights the need for sport-specific research to expand its body of knowledge, through empirical studies based on sound theoretical principles and valid research designs. This makes it possible to obtain more accurate sport-specific performance predictions. Future research should take into account whether sport-specific performance measures, as demonstrated in the studies by van Maarseveen et al. [12] and Fenner et al. [13], accurately reflect sport-specific expertise, can function as the criterion, or have predictive value in the search for talented players.

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Compliance with Ethical Standards

Conflict of interest Tom L. G. Bergkamp, A. Susan M. Niessen, Ruud J. R. den Hartigh, Wouter G. P. Frencken, and Rob R. Meijer have no conflicts of interest directly relevant to the content of this letter.

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